* A - 1 4 7 7 *

A-1477

M.Sc. (Sem. III) (SF) (Pharmaceutical Chemistry) Examination

March / April – 2015

Paper - IV : Rearrangements & Synthetic Approach

Time : **3** Hours] [Total Marks : **70**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ M.SC. (SEM. III) (SF) (PHARMACEUTICAL CHEMISTRY)

Name of the Subject :

☛ PAPER - IV : REARRANGEMENTS & SYNTHETIC APPROACH

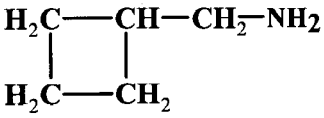
☛ Subject Code No. : 1 4 7 7 ☛ Section No. (1, 2,.....) : Nil

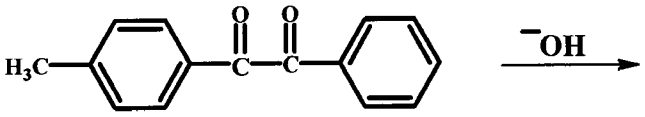
Seat No. :

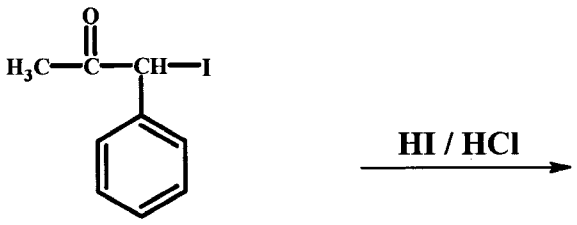
Student's Signature

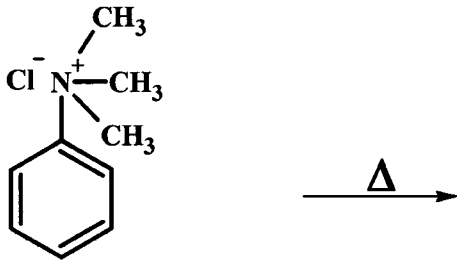
(2) Figures to the right indicate full marks of the questions.

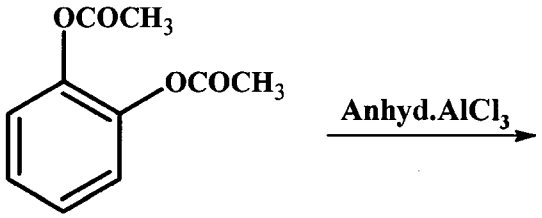
1. Give name of the rearrangement, end product(s) and offer suitable mechanism with supporting explanation briefly of any four of the following: **18**

(i) 

(ii) 

(iii) 

(iv) 

(v) 

2 Answer any THREE of the following: 18

(a) What is meant by disconnection? Explain the following terms with suitable examples:

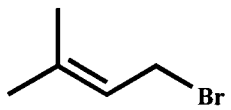
(i) Retrosynthetic arrow (ii) Retrosynthetic analysis

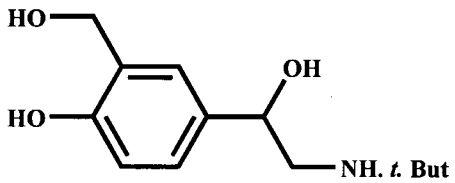
(iii) Synthetic equivalent (iv) Reagent

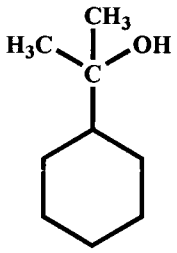
(b) What are needs of protective group in organic synthesis? Give the characteristics of an ideal protective group. State the different protective groups used for the protection of hydroxyl group. Discuss tetrahydropyranyl ether as protecting group. Discuss their advantages and disadvantages. How will overcome it? Give the synthesis of:

(i) 2-Nitro glycerol (ii) L(+) Ascorbic acid.

(c) Give the disconnection and plan the synthesis for the following molecules:

(i) 

(ii) 

(iii) 

(d) Explain the following transformation using appropriate reagents:
(i) 4-Bromo acetophenone → 4-Acetyl benzylacohol
(ii) Cyclohex-2-en-1-one → 3-Acetyl cyclohexanone
(iii) Furfuraldehyde → 5-Benzoyl furan-2-carbaldehyde
(iv) Leucine + Glycine → Leucyl glycine

3 Answer any THREE of the following: **18**

(a) Give methods of preparation of organolithium compounds and give its important reactions.

(b) Give the preparation of 9-BBN. How will you prepare the following using organoborane compounds?
(i) Ketone, (ii) Tertiary alcohol (iii) Amine

(c) Discuss the application of organozinc compounds in organic synthesis.

(d) Give synthetic application of organopalladium compounds.

4 Answer any THREE of the following: **16**

(a) Give mechanism and synthetic applications of Jacobsen rearrangement.

(b) Give methods for the preparation of dialkylcuparate. Explain the reactions of lithium dialkylcuparate with vinylhalide and allyl acetate giving equations.

(c) Give an account of synthetic equivalent groups.

(d) Give mechanism and synthetic applications of Claisen rearrangement.
